DARPA-BAA-16-14
RADICS
Frequently Asked Questions

As of January 21, 2016

Q58: For the Cost Volume, regarding the Cost Summary Tables, are subcontractors required to provide Cost Tables by Fiscal Year by Phase?

A58: Subcontractors are not required by the BAA to submit Cost Summary Tables.

Q57: In the BAA, does "Fiscal Year" mean contractor's Fiscal Year or the government Fiscal Year?

A57: Please use the Government Fiscal Year (October 1 through September 30).

Q56: Does the Government require that each proposal provide detail costing by month for the four-year effort?

A56: Yes.

Q55: The BAA states that Proposals for $750,000 or more require certified cost or pricing data. We assume there will be adequate price competition for this solicitation, therefore no Certificate of Current Cost or Pricing will be required. Please confirm this assumption is correct, and that in order to be compliant in our response we need only state an exception to this paragraph's requirement.

A55: This assumption is incorrect. Although the BAA is a competitive solicitation, prices are not competitive because no two proposals are priced to perform against a single statement of work. Each proposal is uniquely priced to perform the individually proposed statements of work and are not comparable. Therefore, adequate price competition is not a valid exemption from submitting a Certificate of Current Cost or Pricing.

Q54: Please confirm that a Subcontractor's full-disclosure proposal can be submitted by e-mail and is not required to be up-loaded to the DARPA bid site.

A54: This is correct; refer to page 34, section 5, paragraph 3 of the BAA. However, proposers must include in their Cost Volume all subcontractor cost proposals with proprietary information redacted.

Q53: In Question 45, you indicate that PNNL will provide technical support, access to high fidelity grid simulations and subject matter expertise. What level of support should proposers reasonably expect to obtain from PNNL (in terms of hours of effort per year, model runs, dollars of DARPA-funded support, or other metric)?

A53: PNNL will provide expertise in creating data streams that contain realistic anomalies for TA-1 performers to use in the development and testing of their systems. The expectation is that TA-1 performers will have expertise in anomaly detection but may not have deep expertise in electrical power modeling and simulation, so PNNL subject matter experts will be available for consultation during the development of TA-1 systems. TA-1 performers should expect to be able to interact with PNNL experts via email and telecon, but should not expect PNNL to dedicate an engineer full-time to a TA-1 effort.

Q52: How will PNNL undertake grid simulation? Will they use a proprietary model or one that is available in the commercial domain? How granular (spatial, temporal, grid component) is their modeling? Does their simulation provide an integrated model of transmission and distribution, inclusive of communications systems? What span of geography can be simulated by PNNL (e.g., feeder, single utility, ISO/RTO)? How does their modeling approach represent the seams between utility control areas, ISOs/RTOs, and interconnects?

A52: Proposers should articulate the type and extent of support they would need for their proposed approaches, as it may be possible to augment the Government team with relevant expertise. PNNL grid staff have a wide range of power system modeling, simulation, design, and analysis capabilities. A summary of the group's capabilities can be found at: http://energyenvironment.pnnl.gov/ei/default.asp. PNNL hosts the Electricity Infrastructure Operations Center (EIOC), supporting industry software, real-time grid data and advanced computation in a functional control room. More information about the EIOC, and its capabilities, can be found at: http://eioc.pnnl.gov/. The EIOC provides access to real data from North America's eastern and western power grids (note that data confidentiality requirements prohibit its release in most cases, although it can be leveraged for the development of new grid technologies).

PNNL staff have expertise and access to most widely used commercial modeling and simulation tools. The applicable software includes (but is not limited to) PSLF, PSS/E, PowerWorld, Opal-RT, CYMDIST, Synergi Electric, WindMil, Plexos, Alstom EMS/ETS, and Alstom DMS/DOTS. PNNL staff also have expertise (both modeling and development) of a wide range of open-source tools. This applicable software includes (but is not limited to):

GridLAB-D (http://www.gridlabd.org/)

GridPACK (https://www.gridpack.org/wiki/index.php/Main_Page)

GridOPTICS (http://gridoptics.pnnl.gov/articles/o/p/e/Open-Source_Tools_fa67.html)

PowerNET (http://gridoptics.pnnl.gov/powernet/)

DCAT (http://www.pnnl.gov/main/publications/external/technical_reports/PNNL-24843.pdf)

FNCS (http://gridoptics.pnnl.gov/articles/f/n/c/FNCS_Video_f14b.html)

MATPOWER (http://www.pserc.cornell.edu//matpower/)

As a complement to the power grid capabilities described above, PNNL also has expertise across the cyber domain with specific depth in cyber situational awareness, cyber analysis, resiliency, vulnerability assessments and reverse engineering. Our work spans across the domains of mobile and embedded, cyber-physical systems, and cloud computing. Our staff members have developed tools and methodologies for the purpose of enhancing integrity and trustworthiness of digital systems, aiding in analysis of large volumes of data and forecasting the next generation of threats.

Q51: Section IV.B.1.a.vi states, "Resumes count against the proposal page limit so proposers may wish to include them in Appendix B below." However, Section IV.B.1.a.xiii states, "If desired, include a brief bibliography with links to relevant papers, reports, or resumes. Do not include technical papers. This section is optional, and the linked materials will not be evaluated as part of the proposal review." Is it correct that if resumes are included via links provided in Appendix B, then they will not be evaluated? Would the Government consider allowing resumes inserted directly as text in Appendix B (instead of links to external resumes) outside of the stated page limits, and include them in the proposal evaluation?

A51: Proposers may use the technical proposal page count as they see fit to best present their technical ideas and capabilities for achieving them. Insofar as the qualifications of team members are relevant, proposers may wish to provide concise summaries thereof in the technical volume and the text of resumes in Appendix B, to which reviewers may refer at their discretion.

Q50: For TA1, is grid topology information provided?

A50: DARPA anticipates providing relevant grid topology information to enable TA-1 research.

Q49: The BAA lists a number of government-furnished data sources that will be made available to TA-1 performers. Can you provide any more detail on the data sources? In particular: what is the resolution of the data (i.e. sampling frequency), and how much diversity is there in geography, utility, etc?

A49: At this time detailed information regarding data sources is not available, in part because the selection of data sources may be adjusted in response to those proposals selected for award. Proposers should therefore make and state assumptions regarding the nature of the data sources they would require for their technical approaches, and discuss potential technical trades. DARPA will attempt to provide sufficient diversity in geography and

other relevant factors, to the extent that such diversity will help in the development of proof-of-concept and prototype systems.

Q48: Section I.F., Deliverables to DARPA, indicates a final report for each program phase is due one calendar month after the end of each phase and a comprehensive final report is also due after phase 3. Please clarify – are the phase 3 final report and the comprehensive final report due one month after the 48-month program is complete (i.e., is the total period of performance, including final report writing, 49 months)? Or is phase 3 to be a 15-month technical effort, with one month reserved for final report writing?

A48: Phase 3 is to be a 16 month technical effort. The Phase 3 technical report should be drafted within that period of performance (PoP). However, the Final Technical Report (FTR) is the ONLY deliverable that a performer is allowed to work on after the end of the PoP. Performers have 15 days to deliver the FTR to the government. The Government then has 30 days to review it. Then the performer has 15 days to incorporate any requested changes. So in theory the performer can bill for work related to the FTR for up to 60 days after the end of the program PoP. Proposers should assume that any technical advances occurring so late in the 16th month of Phase 3 that they cannot be reported in the Phase 3 report may instead be reported in the FTR.

Q47: For costing purposes, can you please clarify the exercise schedule (pg 16) in relation to the PI meetings? Are they concurrent, overlapping, or independent? If they are concurrent, what is the ratio of days spent in PI meetings in relation to days spent in the exercise?

A47: The first three exercises are concurrent with PI meetings. Assume that the PI meetings require two days and the exercises add another two days to the total meeting. DARPA expects that PIs and senior technical team members will be present at the first three exercises. For costing purposes, assume that the last four exercises will not coincide with PI meetings, and will last three weeks (per the BAA). The PI and/or senior technical team members may want to attend key days of the exercise, but DARPA does not expect the entire team to be present for the duration of the exercise; rather, performer teams will be expected to develop staffing plans that provide sufficient coverage while minimizing the impact on individual team members.

Q46: The BAA indicates for Appendix A, item (1), Team Member Identification, to provide a list of all team members including the prime, subcontractor(s), and consultant(s), & to identify whether each is a non-US organization or individual. The table format provided asks for "individual name" and "organization" and identification of non-U.S. for both "Org" and "Ind" for each entry. Should we interpret this to mean a prime or sub is entered as an organization (leaving entries for "Individual Name" & "Ind" blank) and consultants are entered as "Individual" (leaving entries for "Organization" & "Org" blank)? Or is it required to also list individual names and non-U.S. info for each subcontractor and prime organization's key personnel? Also, please clarify the meaning of "non-U.S." for individuals – does that mean only Foreign Nationals or does it also include Permanent Resident Aliens?

A46: Please fill out the table at the level of key individuals, and provide the organization each individual works for in the Org column. Foreign Nationals and Permanent Resident Aliens are Non-US for the purpose of this table, as are commercial organizations that operate under Foreign Ownership, Control or Influence (FOCI): http://www.dss.mil/isp/foci/foci_info.html.

As of January 8, 2016

Q45: Can DARPA provide any more specific information regarding the nature of modeling and simulation expertise to be provided?

A45: At this time, DARPA anticipates that the Pacific Northwest National Laboratory will provide technical support, access to high fidelity power system simulations and subject matter expertise in the area of power grid modeling and simulation to TA-1 and TA-5 performers.

Q44: The DARPA-BAA-16-14 (RADICS) Amendment 1 contains new text that says: "all TA-1 performers must be able to handle Protected Critical Infrastructure Information (PCII)." Would you please clarify the FIPS Publication 199 impact "potential level" the PCII would be considered (low/moderate/high) for any relevant security objectives (confidentiality, integrity, and/or availability)?

A44: To the greatest degree possible, the RADICS program will use sanitized data, to enable fielding of the resulting technologies in unclassified environments. At this time it is not possible to clarify the potential level or this information. Proposers may wish to consult the DHS website for more information regarding PCII.

http://www.dhs.gov/protected-critical-infrastructure-information-pcii-program

Q43: Would you please confirm exactly what the PCII that must be handled by TA-1 performers is, and in particular, if the PCII referred to is the data mentioned in this paragraph: "The Government intends to provide the following data sets as GFI: (a) multiple geolocated and timestamped streams of data capturing the physics of the grid at the distribution level (e.g., voltage, VARs, phase angle, frequency, impedance), (b) SCADA data streams from a few participating utilities, (c) transmission-level voltage, and current flows for individual transmission lines in areas with bulk power markets, and (d) wholesale market prices for electricity."?

A43: At this time, the Government does not anticipate that the grid physics data streams will be PCII. It is possible that the SCADA data streams may be considered PCII, depending on their origin, although at this time it is not possible to make such a determination, and the Government will seek to provide sanitized data streams to the greatest extent possible. Power market data will not be PCII.

Q42: On page 16 of the BAA, it states that proposers should: "Assume for costing purposes that each of the last four exercises will require at least three technical team members to be onsite at the exercise location for three weeks, and assume that the location will alternate between San Diego and the Washington DC metro area." Does this mean that the PI or other senior team members must be present for the entire three-week period?

A42: Each team should plan to staff each exercise with sufficient team members who have the expertise to debug and run their systems. Exercises often involve long days and may span weekends; while it is not a requirement that each team have three people present at all times, a single individual may be insufficient, particularly for debugging complex systems. Proposers should consider rotating staff over the course of the exercise to reduce the demands on particular individuals, and plan for at least a day of overlap between incoming and outgoing staff for technical hand-off. Exercises often take place in cramped conditions, so while Principal Investigators should plan to attend on particular days in order to understand how their system is responding to the demands of the exercise, team staffing should minimize the number of people who lack in-depth understanding of the actual system code.

Q41: Will there be a common set of criteria for evaluation of TA-1, TA-2 & TA-3 or will custom metrics be developed based upon specifics of the proposed technologies?

A41: Each TA-1, TA-2 and TA-3 proposer should propose their own metrics to measure their technical approach for achieving RADICS objectives. After award, each performer will provide input to TA-5 and the Government team to support the development of evaluation metrics for their individual Test Plan.

Q40: "Government will provide power grid modeling expertise" – How and when will this be available?

A40: Expert At this time, DARPA anticipates that the Pacific Northwest National Laboratory will provide technical support and subject matter expertise in the area of power grid modeling and simulation to TA-1 and TA-5 performers.

Q39: Can you please comment on typical size of award in Areas 1, 2 and 3?

A39: There is no preconceived notion of the typical size of an award in any of these technical areas.

Q38: Can you "finalize" proposals in the DARPA portal multiple times?

A38: No. However, after finalizing a proposal you can submit a 'new' amended version with a comment that it takes precedence over the previously submitted version as long as it is uploaded prior to the due date.

Q37: When will notifications of awards be made?

A37: Notifications of selection will be made following the DARPA proposal selection process. Award depends on successful negotiation of a contract. Award synopsis to FBO will be made on completion of all awards. At this time there is no set date for such notification.

Q36: Can organizations propose to TA-3 & TA-4 and is it encouraged?

A36: Yes, organizations may proposed to both TA-3 and TA-4 (but must do so in separate proposals). The Government neither encourages nor discourages such an approach, as its merits would depend on the technical details of the proposals. Please follow the guidance provided in the BAA, in section III.D Other Eligibility Requirements.

Q35: Wholesale markets are diverse, what kind of market data will be provided to TA-1?

A35: Explicitly state in your proposal what wholesale market data your approach would require. TA-1 approaches should have the potential to detect anomalies at any location in the United States.

Q34: The SOW asks for task breakdown on an annual basis ("Each year of the project should be separately defined."). However, the level of effort summary table is by Phase. Is this an inconsistency?

A34: Yes. This should have been defined as 'by Phase', so each phase of the project should be separately defined in the SOW. See Amendment 1 for clarification.

Q33: The BAA asserts that "approaches should not depend on utility deployment of the proposed technologies prior to attack." For TA-2, what portions of the proposed SEN can we assume are available prior to the attack? (Networking? Hardware? Control Software? Configurations?)

A33: Proposals to TA-2 should focus on proof of the proposed concept, and should state assumptions regarding required equipment and/or data.

Q32: Are the slides from these Proposer Day sessions going to be made available?

A32: The Proposers Day briefing summarized the key aspects of the BAA. As the BAA is published, the briefing will not be made available.

Q31: How about including proprietary information in Vol 1 App. C (only classified info was mentioned)?

A31: Proprietary information should not be treated as classified material and should therefore be included in the proposal (not in the SOW). The purpose of Appendix C is for proposers to submit highly relevant and substantial past performance information that is classified.

Q30: How do we get data into the TA-4 testbed?

A30: That will depend on the particular TA-4 solution selected for award. Make explicit assumptions about how your proposed approach would interoperate with the TA-4 testbed.

Q29: TA-3 seems to be related to threat characterization. Does mitigation fit into that area?

A29: Mitigation of discovered threats is in scope.

Q28: What is the vision/expectation for TA-2 & TA-3 interfaces?

A28: TA-2 and TA-3 systems may exchange data, but will not be integrated. Proposers may wish to discuss how such data would be of use in their proposed approach.

Q27: Is TA-3 to develop mitigation/recovery technologies?

A27: Mitigation/recovery techniques are in scope for TA-3.

Q26: Will there be an opportunity to use high fidelity power system simulations for TA-1 and TA-3?

A26: Yes, access to high-fidelity simulators will be provided by the Government.

Q25: Is there a TRL level expectation on TA-1 and TA-3?

A25: There is no specific TRL level expectation. However, the objective of this program is to produce technologies that may be effectively transitioned and deployed in the field.

Q24: What is the source of the GFE modeling and simulation expertise?

A24: TBD. If you anticipate using this expertise, state assumptions regarding the nature and extent required in your proposal.

Q23: (TA-2) Can equipment be pre-positioned to enable rapid SEN deployment?

A23: The TA-2 approach should describe all requirements for equipment, and the resulting costs for a deployed system. Approaches that minimize such costs are of interest to the Government.

Q22: (TA-4) How many devices are sufficient? 10? 100? 1000? Order of magnitude size?

A22: The TA-4 testbed should be sufficient to support multiple TA-3 teams concurrently, and to enable realistic testing and evaluation.

Q21: What is the best way for software vendors to work with interested participants?

A21: Refer to the RADICS teaming website at: https://www.schafertmd.com/DARPA/I2O/RADICS/PD/Teaming/tiki-index.php

Q20: Please provide more detail on the power system modeling expertise that will be provided to TA-1. Expertise? Working models?

A20: TBD. If you anticipate using this expertise, state assumptions regarding the nature and extent required in your proposal.

Q19: Can you say more about the structure of the USG – supplied grid model?

A19: TBD. If you anticipate using this expertise, state assumptions regarding the nature and extent required in your proposal.

Q18: For TA-1: Where can we learn the specifics of the power grid modeling capability the Government will provide? capabilities, API, structure of data?

A18: TBD. If you anticipate using this expertise, state assumptions regarding the nature and extent required in your proposal.

Q17: For TA-3, must proposals address all elements (localization, device forensics, etc) or can proposers focus on one area? For example, can a proposer just propose innovative ideas for device forensics?

A17: Yes, focused solutions to TA-3 will be acceptable. Solutions with the greatest potential to reduce time to recovery are preferred.

Q16: Does DARPA prefer Procurement or Cooperative Agreement contracts?

A16: The goal of the program is to facilitate technology transition. Certain aspects of procurement contracts, such as well-defined deliverables provide that flexibility. However, each proposal will be evaluated according to the criteria outlined in the BAA.

Q15: Please clarify the expected experimentation in section D. The section discusses demonstrations and exercises. What kind of experimentation is expected? What are the expectations of the 6-month demonstration?

A15: Experiments will focus primarily on the suitability of each RADICS software system to its intended purpose, and will be conducted in the context of exercises.

The focus of the 6-month demonstration will be to address any technical issues that arise between each performer developing software and the TA-5 system evaluator.

Q14: Is there an estimate of the number of awards for TA-1-3? Is there an estimate of the award amount available for each TA?

A14: No. Anticipated total funding available for award under RADICS is $77 million.

Q13: TA-1 and TA-3 seem to have overlap. Can you comment?

A13: These areas are defined to have no overlap; please refer to their descriptions in the BAA.

Q12: If a Task 1 proposal will use Task 2 services, what form of prior teaming agreements should be included in the proposal? For example, if I am hoping to use the Secure Internet 2, but won't budget them in my Task 1 effort?

A12: Please state assumptions regarding required resources in your proposal.

Q11: Does a proposal for TA-2 need to address all of the listed challenges, or can it target a specific part of the problem?

A11: For TA-2, DARPA is seeking complete approaches that address all three challenges described in the BAA.

Q10: Do you prefer University or Industry to award TA-4?

A10: DARPA has no preference.

Q9: Is the TA-2 focused more on protection/isolation capabilities based upon detection/characterization from TA-3?

A9: TA-2 is focused on network isolation and should be capable of operating independently; however, ways in which TA-3 information could make TA-2 approaches more effective are in scope.

Q8: Besides government grid models, will the reliability and maintenance information be provided for TA-1 and TA-2?

A8: Proposals should state what information is required to realize the proposed approach. The Government will attempt to provide requested information, but in some cases may be unable to do so (e.g., if requested information would come from private organizations that consider it proprietary and are unwilling to share).

Q7: How long will the teaming website be open?

A7: Until 11 Feb 2016.

Q6: Would the government provide names of possible utility company partners?

A6: Refer to the RADICS teaming website at: https://www.schafertmd.com/DARPA/I2O/RADICS/PD/Teaming/tiki-index.php

Q5: Is there a candidate initial power grid that is the base for the study?

A5: No.

Q4: What data is classified in your opinion – power grid? Existing vulnerabilities.

A4: The focus is on unclassified data sources only.

Q3: Can you clarify what access to a SCIF means? Does this mean you must have an approved SCIF to Prime?

A3: Please see Amendment 1 to DARPA-BAA-16-14 for clarification.

Q2: Can you elaborate on the requirement for Top Secret security clearance? Is the requirement for site TS access or just for someone who can travel to TS briefings?

A2: Please see Amendment 1 to DARPA-BAA-16-14 for clarification.

Q1: Can a sub meet the requirement for TS clearance of personnel or does this individual have to be a member of the Prime?

A1: Please see Amendment 1 to DARPA-BAA-16-14 for clarification.